

## REMARKS

Claims 3-9, 11-15, 18-24, 26-30, 33-39, and 41-45 are pending in this Application. Applicants have amended claims 3, 5-7, 13, 18, 21, 33, 36, and 43 to define the claimed invention more particularly. Claims 6, 15, 21, 30, 36, and 45 were previously withdrawn. No new matter is added.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicants specifically state that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claims 3-5, 7-9, 12, 13, 18-20, 22-24, 27, 28, 33-35, 37-39, 42, and 43 stand rejected under 35 U.S.C. §103(a) as being unpatentable over ANSI/IEEE std.802.1D, 1998 Edition (hereinafter “the 802.1D specification”) in view of Williams et al. (US Patent No. 6,515,993, hereinafter “Williams”). Claims 11, 14, 26, 29, 41, and 44 stand rejected under U.S.C. §103(a) as being unpatentable over the 802.1D specification in view of Williams and further in view of Liu et al. (US 2002/0191628, hereinafter “Liu”).

Applicants respectfully traverse these rejections in the following discussion.

### I. THE CLAIMED INVENTION

The claimed invention (e.g., as defined by exemplary claim 3) is directed to a network system for a network having plural nodes connected.

A node belonging to the network system includes a CPU (Central Processing Unit) executing a learning frame management unit which refers to a source media access control address (MAC SA) table cache to determine whether a learning frame transmission request of a MAC SA has been made, and a memory system that stores a MAC forwarding table memory which stores an output port for a destination MAC address and destination tag information corresponding to a virtual local area network (VLAN) tagged Ethernet frame.

The destination tag information is included in a learning frame that the network transmits to a path opposite to another path in which a main signal frame flows, and the MAC SA table cache which stores a source MAC address which has made a learning frame transmission request. The main signal frame includes source MAC address and the destination MAC address.

In a conventional learning bridge network, as described in the Background of the present Application, a learning process enters a port which has received the frame and a MAC SA of the frame in a filtering database so to determine a transfer destination port of the frame. In this system, a learning process does not operate when a node through which a flow passes depending on a direction allows a different asymmetrical flow. Thus, the frame reaches the destination but is also transferred to unnecessary destinations. Therefore, the network becomes busy and the bandwidth usability reduces (e.g., see Application at page 2, line 24 – page 3, line 6).

In the claimed invention, however, the destination tag information is included in a learning frame that the network transmits to a path opposite to another path in which a main signal frame flows, and the MAC SA table cache which stores a source MAC address which has made a learning frame transmission request. The main signal frame includes source MAC address and the destination MAC address. (e.g., see Application at Figs. 38-40; page 62, lines 10-13; page 113, lines 24-28, page 114, lines 11-14).

With this arrangement, the invention assigns a VLAN tag for every destination address. For example, when communicating between a subscriber (A) and ISP (B), the tag corresponding to the subscriber (A) of an address is added to the frame transmitted to a subscriber (A) from ISP (B), and the tag corresponding to ISP (B) of an address is added to the frame transmitted to ISP (B) from a subscriber (A).

For this reason, it is necessary to determine the tag which should be added on a destination MAC address. That is, mapping between a destination MAC address and a tag is needed. Therefore, the invention creates the mapping table (MAC forwarding table memory) of a destination MAC address and the tag which should be added by transmitting a learning frame so that such mapping can be performed automatically.

With the claimed features, even when the asymmetrical flow is flown by sending the learning frame through a path opposite to the path where the main signal frame flows, the learning process can be functioned, the network congestion can be remedied from becoming congestion, and the bandwidth usability can be improved (e.g., see Application at page 113, lines 13-18). Further, because the tag information is included in the learning frame, the setting of the forwarding tag to be added can be automated (e.g., see Application at page 114, lines 15-18).

## II. THE PRIOR ART REJECTIONS

### A. The 802.1D specification and Williams rejection

In rejecting claims 3-5, 7-9, 12, 13, 18-20, 22-24, 27, 28, 33-35, 37-39, 42, and 43, the Examiner alleges that one of ordinary skill in the art would have combined the 802.1D specification with Williams to render obvious the claimed invention.

Applicants respectfully submit, however, that the references would not have been combined as alleged by the Examiner and that, even if combined, the alleged combination of references would not teach or suggest each and every feature of the claimed invention.

That is, the 802.1D specification and Williams , either alone or in combination (*arguendo*) fail to teach or suggest, “*a MAC forwarding table memory which stores an output port for a destination MAC address and destination tag information corresponding to a virtual local area network (VLAN) tagged Ethernet frame, said destination tag information being included in a learning frame that said network transmits to a path opposite to another path in which a main signal frame flows; and the MAC SA table cache which stores a source MAC address which has made a learning frame transmission request, said main signal frame having said source MAC address and said destination MAC address,*” (emphasis added by Applicants) as recited in claim 3, and similarly recited in claims 18 and 33.

Indeed, the Examiner does not even allege that the 802.1D specification and Williams teach or suggest these features of the claimed invention.

With the claimed features, even when the asymmetrical flow is flown by sending the learning frame through a path opposite to the path where the main signal frame flows, the learning process can be functioned, the network congestion can be remedied from becoming congestion, and the bandwidth usability can be improved (e.g., see Application at page 113, lines 13-18). Further, because the tag information is included in the learning frame, the setting of the forwarding tag to be added can be automated (e.g., see Application at page 114, lines 15-18).

The 802.1D specification and Williams, however, fail to teach or suggest the aforementioned features of the claimed invention.

The 802.1D specification teaches that the alleged filtering database merely supports the creation, updating, and removal of dynamic filtering entries (section 7.9). Indeed, section 7.9 of the 802.1D, upon which the Examiner bases his rejection (or anywhere else for that matter), fails to teach or suggest, “*a MAC forwarding table memory which stores an output*

*port for a destination MAC address and destination tag information corresponding to a virtual local area network (VLAN) tagged Ethernet frame, said destination tag information being included in a learning frame that said network transmits to a path opposite to another path in which a main signal frame flows; and the MAC SA table cache which stores a source MAC address which has made a learning frame transmission request, said main signal frame having said source MAC address and said destination MAC address," (emphasis added by Applicants) as recited in claim 3, and similarly recited in claims 18 and 33.*

Furthermore, Applicants submit that Williams fails to make for the the deficiencies of the 802.1D specification.

Williams teaches the port to VLAN index table 601 that associates a VLAN with a given port (col. 10, lines 60-63; Fig. 6). Williams, however, fails to teach or suggest, "*a MAC forwarding table memory which stores an output port for a destination MAC address and destination tag information corresponding to a virtual local area network (VLAN) tagged Ethernet frame, said destination tag information being included in a learning frame that said network transmits to a path opposite to another path in which a main signal frame flows; and the MAC SA table cache which stores a source MAC address which has made a learning frame transmission request, said main signal frame having said source MAC address and said destination MAC address," (emphasis added by Applicants) as recited in claim 3, and similarly recited in claims 18 and 33.*

Since Williams does not overcome the deficiencies of the 802.1D specification, the combination of references fails to render the rejected claims obvious.

Moreover, Applicants respectfully submit that these references are unrelated and would not have been combined as alleged by the Examiner. Thus, no person of ordinary skill in the art would have considered combining these disparate references, absent impermissible hindsight.

Further, Applicants submit that there is no motivation or suggestion in the references (and thus no predictability for one of ordinary skill in the art) to urge the combination as alleged by the Examiner. Indeed, these references clearly do not teach or suggest their combination. Therefore, Applicants respectfully submit that one of ordinary skill in the art would not have been motivated to combine the references as alleged by the Examiner. Therefore, the Examiner has failed to make a prima facie case of obviousness.

Particularly, Applicants respectfully submit that the Examiner has not considered the invention as a whole for what it fairly teaches. Instead, the Office Action attempts to establish the obviousness of the claimed invention merely by identifying the individual elements of the claims and citing references to show the elements. That is, the stated grounds of rejection merely identify features, which are alleged to correspond to individual elements of the claims, in a series of somewhat related references.

However, Applicants note that it is not enough merely to show that each of the individual elements of the claims are taught by the combination of references, or for that matter, even that the elements *could* be combined as alleged. Instead, the Examiner also must show that it would have been obvious to combine the references to arrive at the invention as a whole.

That is, the question is not merely whether the differences themselves between the claimed invention and the cited references would have been obvious, but whether the claimed invention as a whole would have been obvious from the cited references (e.g., see M.P.E.P. § 2141.02).

Accordingly, Applicants respectfully submit that none of the cited references, either alone or in combination, discloses or suggests that novel and unobvious combination of elements of the claimed invention, when considered as a whole.

Therefore, Applicants respectfully submit that, one with ordinary skills in the art would not have combined the 802.1D specification with Williams, and even if combined, the alleged combination does not teach or suggest (or render obvious) each and every feature of the claimed invention. Therefore, Applicants respectfully request the Examiner to reconsider and withdraw this rejection.

#### **B. The 802.1D specification, Williams, and Liu rejection**

In rejecting claims 11, 14, 26, 29, 41, and 44, the Examiner alleges that one of ordinary skill in the art would have combined the 802.1D specification with Williams and Liu to render obvious the claimed invention.

Applicants respectfully submit, however, that the references would not have been combined as alleged by the Examiner and that, even if combined, the alleged combination of references would not teach or suggest each and every feature of the claimed invention.

That is, the 802.1D specification and Williams, as set forth above in section A, do not

teach or suggest, “*a MAC forwarding table memory which stores an output port for a destination MAC address and destination tag information corresponding to a virtual local area network (VLAN) tagged Ethernet frame, said destination tag information being included in a learning frame that said network transmits to a path opposite to another path in which a main signal frame flows; and the MAC SA table cache which stores a source MAC address which has made a learning frame transmission request, said main signal frame having said source MAC address and said destination MAC address,*” emphasis added by Applicants) as recited in independent claim 3, and similarly recited in independent claims 18 and 33.

Moreover, Applicants submit that Liu fails to make up the deficiencies of the 802.1D specification and Williams.

Indeed, Liu teaches a design model 11 that includes a lookup step 13 and a forwarding translation step 15 (paragraphs [0023] and [0024]). Liu, however, fails to teach or suggest the aforementioned features of the claimed invention.

Indeed, the Examiner does not even allege that Liu teaches or suggests these features. The Examiner merely relies on Liu for allegedly teaching a broadcast table memory and a tag address management table.

Since Liu does not overcome the deficiencies of the 802.1D specification and Williams, the combination of references fails to render the rejected claims obvious.

Moreover, Applicants respectfully submit that these references are unrelated and would not have been combined as alleged by the Examiner. Thus, no person of ordinary skill in the art would have considered combining these disparate references, absent impermissible hindsight.

Further, Applicants submit that there is no motivation or suggestion in the references (and thus no predictability for one of ordinary skill in the art) to urge the combination as alleged by the Examiner. Indeed, these references clearly do not teach or suggest their combination. Therefore, Applicants respectfully submit that one of ordinary skill in the art would not have been motivated to combine the references as alleged by the Examiner.

Therefore, the Examiner has failed to make a prima facie case of obviousness.

Therefore, Applicants respectfully submit that, one with ordinary skills in the art would not have combined the 802.1D specification with Williams and Liu, and even if combined, the alleged combination does not teach or suggest (or render obvious) each and every feature of the claimed invention. Therefore, Applicants respectfully request the

Examiner to reconsider and withdraw this rejection.

### **III. FORMAL MATTERS AND CONCLUSION**

Applicants respectfully request the Examiner's acknowledgment of the priority document filed on February 19, 2003.

In view of the foregoing, Applicants submit that claims 3-5, 7-9, 11-14, 18-20, 22-24, 26-29, 33-35, 37-39, and 41-44, all the claims presently under examination in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

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